

REMARKS

This paper is being provided in response to the Office Action mailed December 28, 2004, for the above-referenced application. In this response, Applicant has cancelled claims 5 and 12 without prejudice or disclaimer of the subject matter thereof and amended claims 1, 2, 4, 6, 10, 11, 17, 19, 20, 25, 27, 28 and 35 to clarify that which Applicant considers to be the invention. Applicant respectfully submits that the amendments to the claims are fully supported by the originally-filed specification.

With respect to the priority document, Applicant submits herewith a certified copy of German priority application 100 54 205.0 as required under 35 U.S.C. 119(b).

With respect to the objection to the Information Disclosure Statement previously filed on March 5, 2002, Applicant submits herewith a copy of the PTO Form 1449 corresponding to the Information Disclosure Statement and cited references that were previously filed. Applicant respectfully requests that the Examiner indicate his consideration of the references by initialing where appropriate on the PTO Form 1449 and return a signed copy of the form with the next communication to Applicant.

The objection to the drawings have been addressed herein, and as explained above, by the submission of formal drawings conforming to the requirements of 37 C.F.R. 1.84 and the Notice of Draftperson's Patent Drawing Review. Accordingly, Applicant respectfully requests that this objection be reconsidered and withdrawn.

The objections to the claims for informalities have been addressed herein in accordance with the guidelines as set forth in the Office Action. Accordingly, Applicant respectfully requests that these objections be reconsidered and withdrawn.

The rejection of claims 1, 11, 14, 15, 17, 18, 20, 22, 23, 27, 29-36 and 39 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,040,917 to Camuffo (hereinafter “Camuffo”) is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

Independent claim 1, as amended herein, recites a device that attaches a first component to a second component. A sleeve is positioned in the first component and is axially aligned in the first component. A bolt is positioned in the sleeve and has a threaded front end that projects outwardly from the sleeve for screwing into a mating thread of the second component, and which is screwed into the sleeve with a slight radial play and held supported against axial forces. The bolt has a recess in its axial section accommodated in the sleeve and a spring lock washer located in the recess, whereby as the bolt is axially introduced into the sleeve, the spring lock washer is pressed radially by the sleeve into the recess and engages radially behind an inner shoulder of the sleeve for axial support. A rear end of the sleeve includes a lead-in cone and, at the rear end of the sleeve in the direction of introduction of the bolt, the sleeve includes a collar that projects radially outward. An end section at a front end of the sleeve has a reduced wall thickness that is flanged outward. Further, the recess of the bolt includes a rear deep section and a front flat section for the spring lock washer that co-acts with the lead-in cone during introduction of the

bolt into the sleeve and co-acts with the inner shoulder of the sleeve during detachment. Claims 2-16 depend directly or indirectly on independent claim 1.

Independent claim 17, as amended herein, recites an attachment device. The device includes a substantially cylindrical sleeve having a hollow interior portion with a first interior section, an adjacent second interior section and an inner shoulder. An elongated bolt fits in the sleeve. A recess is formed on a portion of the bolt. An elastic member is disposed in the recess, wherein the elastic member radially compresses inwardly in response to the bolt being disposed in the first interior section. The elastic member radially decompresses outwardly to enable the elastic member to engage the inner shoulder in response to the bolt being disposed in the second interior section. A rear end of the sleeve includes a lead-in cone and, at the rear end of the sleeve in the direction of introduction of the bolt, the sleeve includes a collar that projects radially outward. An end section at a front end of the sleeve has a reduced wall thickness that is flanged outward. Further, the recess of the bolt includes a rear deep section and a front flat section for the elastic member that co-acts with the lead-in cone during introduction of the bolt into the sleeve and co-acts with the inner shoulder of the sleeve during detachment. Claims 18-34 depend directly or indirectly on independent claim 17.

Independent claim 35, as amended herein, recites an attachment device. The device includes an elongated bolt and a means for accepting the elongated bolt. An elastic member is disposed on the bolt. A means for retaining the elastic member is formed on the bolt. A means for engaging the elastic member is included, wherein the elastic member radially compresses in response to the bolt being disposed in a first interior section of the means for accepting the bolt

and wherein the elastic member decompresses and is engaged in response to the bolt being disposed in a second interior section of the means for accepting the bolt. A rear end of the means for accepting the elongated bolt includes a lead-in cone and, at the rear end of the means for accepting the elongated bolt in the direction of introduction of the bolt, the means for accepting the elongated bolt includes a collar that projects radially outward. An end section at a front end of the means for accepting the elongated bolt has a reduced wall thickness that is flanged outward. Further, the recess of the bolt includes a rear deep section and a front flat section for the elastic member that co-acts with the lead-in cone during introduction of the bolt into the means for accepting the elongated bolt and co-acts with an inner shoulder of the means for accepting the elongated bolt during detachment. Claims 2-16 depend directly or indirectly on independent claim 1.

The Camuffo reference discloses a device for fixing mechanical parts to the body of a motor vehicle. The mechanical part to be fixed carries at least one locating element which engages a corresponding hole formed in the body. The locating element has a threaded hole which is engaged by a screw on which the smaller-diameter portion of a sleeve can slide. (See Abstract and col. 1, lines 47-61 of Camuffo.)

Applicant's independent claims, as amended herein, recite an attachment device including at least the features of sleeve, a bolt that fits into the sleeve and an elastic member, such as a spring lock washer, wherein a rear end of the sleeve includes a lead-in cone and, at the rear end of the sleeve in the direction of introduction of the bolt, the sleeve includes a collar that projects radially outward, wherein an end section at a front end of the sleeve has a

reduced wall thickness that is flanged outward, and wherein the recess of the bolt includes a rear deep section and a front flat section for the spring lock washer that co-acts with said lead-in cone during introduction of the bolt into the sleeve and co-acts with the inner shoulder of the sleeve during detachment. Applicant has found that the presently claimed invention provides an easy automatic attachment. The sleeve can be fixed in a first component by inserting the sleeve into a hole of the component and by flanging outwardly the front end of the sleeve. The bolt can be introduced into the sleeve automatically by a robot. The spring lock washer holds the bolt in the sleeve for the attachment of the first component to a second component. Further, the spring lock washer presses the first component away from the second component for detachment when the bolt is thread out from the second component. (See, for example, page 9, lines 7-18 and page 10, line 14 to page 11, line 7 and Fig. 1 of the present specification.)

Applicant respectfully submits that Camuffo does not teach or fairly suggest at least the above-noted features as claimed by Applicant. Specifically, according to Camuffo, a bolt 3 has no recess with two sections of different depth. The bolt cannot be introduced into the sleeve together with the split ring washer 6. The split ring washer 6 is fitted on the bolt 3 after the bolt is introduced into the sleeve 5. The function of Camuffo's split ring washer is to prevent the accidental disengagement of the bolt from the sleeve. (See col. 2, lines 53-56 of Camuffo.) The sleeve is not fixed in the component, but is supported axially on the floor part 2. Accordingly, in view of the above, Applicant respectfully requests that this rejection be reconsidered and withdrawn.

The rejection of claims 35, 36 and 39 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 3,221,794 to Acres (hereinafter “Acres”) is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

The features of independent claim 35 are discussed above. Claims 36 and 39 depend therefrom.

The Acres reference discloses a captive fastener including a screw 10 and shank 14 that is provided with a stepped groove 20. A split retaining ring 26 that is placed on the screw 10. (See col. 3, lines 1-72 and Figs. 1, 2 of Acres.)

Applicant respectfully submits that Acres does not teach or fairly suggest at least the above-noted features as claimed by Applicant. Specifically, Acres’ device does not show a sleeve fixed in the first component (34). Therefore, Acres does not show especially a sleeve with a reduced wall thickness at the front end that is flanged outward and a lead-in cone pressing the spring lock washer radially into the recess during introduction of the bolt into the sleeve. Since there is no sleeve, the threaded end of the bolt cannot project outwardly from the sleeve. Accordingly, Applicant respectfully requests that this rejection be reconsidered and withdrawn.

The rejection of claims 2-4, 10, 13, 16 and 28 under 35 U.S.C. 103(a) as being unpatentable over Camuffo in view of U.S. Patent No. 3,812,756 to Wenger (hereinafter “Wenger”) and further in view of Acres is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

The features of the independent claims 1, 17 and 35 are discussed above with respect to Camuffo and Acres. Claims 2-4, 10, 13 16 and 28 depend therefrom.

The Wenger reference discloses a positive lock self-retained fastener. The Office Action cites especially to Figure 5 in which is shown a thread bolt provided with a nut 51 that is the primary holding means. A ring 21 is disposed in a groove 20 and the outside diameter of the ring is greater than the minor or root diameter of the thread shank surface. (See col. 6, line 65 to col. 7, line 7 of Wenger.)

Applicant respectfully submits that Wenger does not overcome the above-noted deficiencies of the Camuffo and Acres references with respect to Applicant's presently claimed invention. Specifically, the fastener according to Wenger does not show a sleeve. Further, the bolt does not show a recess with two sections with different radial depths. Applicant respectfully submits that neither Wenger, Camuffo nor Acres, taken alone or in combination, teach or fairly suggest an attachment device including at least the features of sleeve, a bolt that fits into the sleeve and an elastic member, such as a spring lock washer, wherein a rear end of the sleeve includes a lead-in cone and, at the rear end of the sleeve in the direction of introduction of the bolt, the sleeve includes a collar that projects radially outward, wherein an end section at a front end of the sleeve has a reduced wall thickness that is flanged outward, and wherein the recess of the bolt includes a rear deep section and a front flat section for the spring lock washer that co-acts with said lead-in cone during introduction of the bolt into the sleeve and

co-acts with the inner shoulder of the sleeve during detachment, as is claimed by Applicant. Accordingly, Applicant respectfully request that this rejection be reconsidered and withdrawn.

The rejection of claims 1-39 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,244,325 to Knohl (hereinafter “Knohl”) in view of Wenger and Acres is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

The features of the independent claims 1, 17 and 35 are discussed above with respect to Wenger and Acres. The remaining claims depend therefrom.

The Knohl reference discloses a fastener assembly with an axially slidable sleeve. The sleeve is slidable axially through a limited range along the shank of a threaded fastener. A resiliently yieldable retainer grips an unthreaded portion of the fastener shank and co-acts with the adjacent end of the thread to captivate the sleeve against slipping axially off of the fastener. (See Abstract, Figs. 5 and 6 of Knohl.)

Applicant respectfully submits that Knohl does not overcome the above-noted deficiencies of the Wenger and Acres references with respect to Applicant’s presently claimed invention. Specifically, the bolt disclosed by Knohl does not have a recess so that the bolt cannot be introduced together with the lock washer into the sleeve. Further, the sleeve has no reduced wall thickness at its front end to be flanged outward. Applicant respectfully submits that neither Knohl, Wenger nor Acres, taken alone or in combination, teach or fairly suggest an

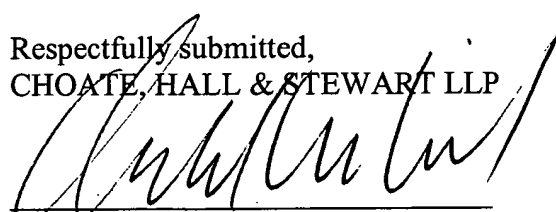
attachment device including at least the features of sleeve, a bolt that fits into the sleeve and an elastic member, such as a spring lock washer, wherein a rear end of the sleeve includes a lead-in cone and, at the rear end of the sleeve in the direction of introduction of the bolt, the sleeve includes a collar that projects radially outward, wherein an end section at a front end of the sleeve has a reduced wall thickness that is flanged outward, and wherein the recess of the bolt includes a rear deep section and a front flat section for the spring lock washer that co-acts with said lead-in cone during introduction of the bolt into the sleeve and co-acts with the inner shoulder of the sleeve during detachment, as is claimed by Applicant. Accordingly, Applicant respectfully request that this rejection be reconsidered and withdrawn.

Based on the above, Applicants respectfully request that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 617-248-4038.

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AMENDMENTS TO THE DRAWINGS:

Replacement Sheet 1 and New Sheet 2 are attached hereto containing revised Figures 1-4 and replace the single sheet of figures previously submitted. Figure 1 appears on Replacement Sheet 1 and Figures 2, 3 and 4 now appear on New Sheet 2. The figures have been formalized in accordance with the requirements of 37 C.F.R. 1.84 and the Notice of Draftperson's Patent Drawing Review provided by the Examiner. Applicant respectfully submits that no new matter is added by the amendments.